sheets for distribution. When the writer examined this material about one third of it was found to be *V. carinata* and the remaining two thirds were *V. olitoria*, another introduced species. The plants of *V. carinata* were in the advanced fruiting stage while those of *V. olitoria* were in the early flowering stage. The two species were growing there together but *V. carinata* was about two or three weeks earlier than *V. olitoria*.

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NOTEWORTHY PLANTS OF SOUTHEASTERN VIRGINIA

M. L. FERNALD

(*Continued from page 459*)

*CHRYSOPSIS **Longii**, sp. nov. (TAB. 531, FIG. 1–4), planta *C. gossypinam* simulans valde sericeo-lanata, villis albidis; caulibus 1–10 4.5–7.5 dm. altis basi decumbentibus supra ramosis ramis divergentibus vel adscendentibus; foliis basilaribus rosulatis oblanceolatis 3–7 cm. longis 0.5–1.7 cm. latis; foliis caulinis numerosis, imis anguste obovatis vel oblongo-oblanceolatis 3–6 cm. longis 1–2.3 cm. latis, foliis mediis superioribusque oblongis leviter reductis, foliis ramorum similibus minoribus subremotis; involucro late hemispherico-campanulato 1–1.5 cm. alto valde albido-lanato; bracteis 5–6-seriatis lineari-lanceolatis apice attenuatis, apicibus deinde squarrosis; ligulis 25–30, 1–1.3 cm. longis; disci floribus numerosis (100–200), 6–8 mm. longis, fauce lobisque longe villosis; achaeniis oblanceolatis stipitatis 2.8–3.4 mm. longis 0.8–1.2 mm. latis dense sericeo-strigosis, pilis albidis; pappo ochroleuco 6–8 mm. longo.—Southampton County, VIRGINIA: dry sand, pine barrens about 7 miles south of Franklin, September 7 and 8, 1937, *Fernald & Long*, no. 7664 (TYPE in Gray Herb., ISOTYPE in Herb. Phil. Acad.), October 12, 1937, *Braxton Townsend*, no. 7725 (TOPOTYPE, distributed to many herbaria); sandy thickets and open woods near Blackwater River, north of Smith's Ferry, back of Bailey's Seine Beach, July 19, 1938, *Fernald & Long*, no. 8874; dry sandy old clearing, north of Smith's Ferry, Nottoway River, *Fernald & Long*, no. 8875.

Chrysopsis Longii is apparently the plant which has passed as *C. gossypina* (Michx.) Nutt. in southeastern Virginia (see p. 366). I have seen no earlier-collected material identified as *C. gossypina* and Small (Man.) doubts the extension northward into Virginia of that species (*C. pilosa* (Walt.) Britton). However, our original station for it is

in the dry sandy pine barren through which the old and now abandoned road southward toward Murfreesboro, North Carolina, used to run; in fact, the plant abounds and spreads[1] in the loose sand of the abandoned roadway. In 1867 the late Wm. M. Canby collected near Franklin *Baptisia villosa* (Walt.) Ell. and many other highly localized species (now in the Gray Herbarium) and he, as well as others before and after him, could hardly have missed so conspicuous a plant as *Chrysopsis Longii*.

Although so strongly resembling *Chrysopsis gossypina* that, upon discovering it, we took if for that more southern species, *C. Longii* differs from the plant occurring from southeastern North Carolina to Florida in several characters. In habit and foliage it is very similar but its leaves are relatively large. The involucre of *C. gossypina* (FIG. 5) has the bracts shorter, narrower, less inclined to be squarrose at tip and with the slender tips more implicated in wool; the broader and longer bracts of *C. Longii* (FIG. 2) soon become squarrose and their tips are mostly free or less inmeshed. The most fundamental characters, however, are in the disk-corollas and the mature achenes. The disk-corollas of *C. gossypina* (FIG. 6) are glabrous at summit, those of *C. Longii* (FIG. 3) have long villi or sparse beard at the throat and on the lobes. The ripe achenes of *C. gossypina* (FIG. 7) are cuneate-obovate, 2 mm. long and with a prominent blunt and smoothish rib down the middle of each of the sparsely pilose faces. The ripe achenes (FIG. 4) of *C. Longii* are narrower and longer (2.8–3.4 mm. long), copiously silky-strigose and with a very slender and obscure pilose midrib on each face.

A word should be said regarding the correct name of *Chrysopsis gossypina*. The species was first published as *Erigeron pilosum* Walt. Fl. Carol. 206 (1788). It was next described from "maritimis Carolinae et Floridae" as *Inula gossypina* Michx. Fl. Bor.-Am. ii. 122 (1803). In 1818 the species was transferred to *Chrysopsis* as *C. gossypina* (Michx.) Nutt. Gen. ii. 150 (1818), the correct name for the plant. In 1832 Nuttall described the well-known species of the interior of the United States as *C. pilosa* Nutt. Journ. Acad. Phila. vii. 66 (1834). But Britton, following the now discarded American Code, renamed *C. pilosa* Nutt. (1834) *C. Nuttallii* Britton in Mem. Torr. Bot. Cl. v. 316 (1894) because of the earlier *Erigeron pilosum*

[1] In July, 1938, the white-lanate plant was found to spread so vigorously in sandy clearings that I jocosely dubbed it "LONG'S FLANNELWEED."

Photo. E. C. Ogden.

CHRYSOPSIS LONGII: FIG. 1, small plant, × ½; FIG. 2, involucre, × 1; FIG. 3, disk-corolla, × 7; FIG. 4, achene, × 7.

C. GOSSYPINA: FIG. 5, involucre, × 1; FIG. 6, disk-corolla, × 7; FIG. 7, achene, × 7.

Photo. E. C. Ogden.

SOLIDAGO PERLONGA: FIG. 1, plant, × $\frac{2}{5}$, from Virginia; FIG. 2, reticulation of leaf, × 10, from TYPE; FIG. 3, involucre, × 5; FIG. 4, achene, × 10.

S. AUSTRINA: FIG. 5, reticulation of leaf, × 10, from ISOTYPE; FIG. 6, involucre, × 5, from ISOTYPE; FIG. 7, achene, × 10, from ISOTYPE.

Walt. (1788); and he published the equally superfluous combination *C. pilosa* (Walt.) Britton, l. c. (1894) not Nutt. (1834) for the plant which is correctly *C. gossypina* (Michx.) Nutt.

SOLIDAGO ARGUTA Ait. Reaching the Coastal Plain in SUSSEX COUNTY: alluvial woods, terraces of Nottoway River, southwest of Burt and southwest of Lamb's, nos. 7666, 7667. GREENSVILLE COUNTY: rich woods by Fontaine Creek, west of Dahlia, noted but not collected. SURRY COUNTY: calcareous wooded slope by James River, Cobham Wharf, no. 9462. See p. 366.

*SOLIDAGO **perlonga,** sp. nov. (TAB. 532, FIG. 1–4), planta *S. austrinam* simulans; caule glabro plus minusve purpureo-maculato 0.9–1.5 m. alto; foliis subcoriaceis glaberrimis margine scabro exceptis conspicue punctatis, basilaribus laminis late oblanceolatis vel anguste ovato-lanceolatis acutis vel subacutis 0.7–2.5 dm. longis 1.5–8 cm. latis serratis vel crenatis basi attenuatis, costa dorso acute angulata, reticulo conspicuo, petiolis vix alatis eciliatis laminam aequantibus vel superantibus, foliis caulinis valde reductis imis elongatis mediis superioribusque lanceolatis integris vel subintegris acutis, reticulo conspicuo; inflorescentia valde elongata, anguste cylindrica interrupta 2–6.5 dm. alta simplici 2–5 cm. diametro ramulis secundis perbrevibus apice floriferis, vel ramosis ramis erectis vel adscendentibus valde elongatis; pedicellis glabris bracteolatis ad 1 cm. longis; involucris campanulatis 5.5–6.5 mm. longis; bracteis chartaceis 4–5-seriatis, exterioribus lanceolato-subulatis, interioribus oblongo-linearibus obtusis stramineis dorso viridibus; disci floribus 12, tubo 1–1.5 mm. longo, fauce 2–2.5 mm. longo, lobis 1 mm. longis; ligulis 5–7, 1.7–2 mm. latis; achaeniis maturis 1.4–1.8 mm. longis albido-strigosis; pappo maturo 4 mm. longo.—Southeastern VIRGINIA: wet woods, Westhampton, Henrico County, in young flower, September 9, 1937, *Fernald & Long,* nos. 7668 and 7669, in fruit October 13, 1937, *R. F. Smart;* clearing in wet argillaceous pineland northeast of Courtland, Southampton County, in young flower, September 11, 1937, *Fernald & Long,* no. 7670 (TYPE in Gray Herb., ISOTYPES in Herbs. Phil. Acad., Univ. Richmond and elsewhere); border of exsiccated argillaceous woods south of Brandon, Prince George County, August 16, 1938, *Fernald & Long,* nos. 9180–9183; border of field, west of Burrowsville, Prince George County, September 17, 1938, *Fernald & Long,* no. 9463; exsiccated swampy woods about 1 mile southwest of Branchville, Southampton County, August 19, 1938, *Fernald & Long,* no. 9184; exsiccated argillaceous pineland about 2 miles east of Stony Creek, Sussex County, August 24, 1938, *Fernald & Long,* no. 9185, also October 11 and 12, 1938, no. 9640. See p. 370.

Solidago perlonga, very striking on account of its slender and elongate inflorescence, simulates *S. austrina* Small, *S. flavovirens* Chapm. and *S. yadkinensis* (Porter) Small. Its quite glabrous in-

florescence, its elongating rhizomes and the slender eciliate petioles of its basal leaves quickly distinguish it from the last species. In its rhizome, eciliate petioles and glabrous inflorescence it is close to the two former and clearly belongs in the series designated by Mackenzie in Small's Manual the *Uliginosae*.[1] From *S. flavovirens* of the Apalachicola marshes it is at once separated by its slender petioles, mostly serrate lower blades and broad blunt involucral bracts. In general *S. perlonga* is nearest related to *S. austrina*. It is coarser throughout, except for the smaller achenes. Its conspicuously veiny leaves (FIG. 2) with greenish rather acutely angled midrib contrast with the minutely and inconspicuously reticulate leaves (FIG. 5) and the whitish wire-like midrib of *S. austrina*. In the latter the basal leaves have blades 0.7–1.5 dm. long and only 1–2.5 cm. broad; in the newly proposed species they are much larger (1–2.5 dm. long and up to 8 cm. broad). In *S. austrina* the involucre (FIG. 6) is 4–5 mm., in *S. perlonga* (FIG. 3) 5.5–6.5 mm. high and with broader bracts. The ligules of *S. austrina* are 1–1.5 mm., those of *S. perlonga* 1.7–2 mm. broad. The mature achenes of *S. austrina* (FIG. 7), as shown in the type collection, are 3–3.6.5 mm. long, those of the coarser *S. perlonga* (FIG. 4) are only 1.4–1.8 mm. long. In southeastern Virginia, where *S. perlonga* occurs in wet woods and peaty clearings, it was just beginning to flower on September 9th,[2] and mature material has been supplied by Dr. Smart, collected on October 13th. The type of *S. austrina*, in fully mature fruit, was collected September 11th and several sheets are before me in full anthesis collected in North Carolina in mid-August. In general species of *Solidago* flower earlier in the North than southward. It is probable that *S. perlonga* is a later-flowering plant than its nearest ally. As the type[3] of *S. perlonga* I have designated the plant of Southampton County, although we have a more diverse series from the Westhampton station. The latter colony, unfortunately, is in the midst of a rapidly changing suburban development and is destined soon to be destroyed. The type-station is in wild and, except for cutting of timber, undisturbed pineland between Courtland and Sedley.

[1] In his definition of the series Mackenzie explicitly says "blades . . . not pellucid-punctate." This. however, was an unfortunate statement, for in the herbarium-material of *S. flavovirens*, *S. austrina* and *S. perlonga* the pellucid dots are very definitely shown by holding the specimens in front of an ordinary desk-lamp.

[2] In 1938, *S. perlonga*, seen frequently in swampy or exsiccated borders of woods, began flowering in mid-August but was in its prime in mid-September.

[3] The TYPE was designated and isotypes distributed to other herbaria before the discovery in 1938 of several more extensive colonies.

S. GRAMINIFOLIA (L.) Salisb., var. POLYCEPHALA Fern. Inland to DINWIDDIE COUNTY: sphagnous boggy margin of spring-fed pond, Century House, northeast of Burgess, nos. 7674, 7675. See p. 368.

ERIGERON PULCHELLUS Michx. Eastward in rich woods and clearings to SURRY COUNTY.

E. PHILADELPHICUS L. SURRY COUNTY: calcareous meadow near head of Sunken Meadow Creek, south of Claremont, no. 7977.

Our only other Coastal Plain station is on Cedar Island in Back Bay, Princess Anne County.

E. VERNUS (L.) T. & G. Extended inland from the coast of Princess Anne County to western NANSEMOND COUNTY: springy thicket bordering ditch, north of Factory Hill, no. 8491. See p. 379.

*ANTENNARIA FALLAX Greene, var. CALOPHYLLA (Greene) Fernald (*A. ampla* Bush). DINWIDDIE COUNTY: dry sandy pine woods southeast of Burgess, no. 7691. PRINCE GEORGE COUNTY: dry woods northeast of Talpa, no. 8889.

First north of North Carolina.

*A. MUNDA Fernald in RHODORA, xxxviii. 229, t. 433 (1936). SURRY COUNTY: knoll at border of dry beech woods in gully 1½ miles north of Surry, no. 8493. See p. 383.

Extension south from northeastern Pennsylvania.[1] Inadequate specimens from the mountains of North Carolina may belong here.

A. SOLITARIA Rydb. Occasional on rich wooded slopes eastward to SURRY COUNTY: east of Cabin Point, no. 7979; and noted as far east as Sunken Meadow Beach and Surry. YORK COUNTY: dry open woods northwest of Tabb's, no. 7693. See pp. 371, 375.

GNAPHALIUM OBTUSIFOLIUM L., var. MICRADENIUM Weatherby. Local range extended westward. SUSSEX COUNTY: dry pine woods east of Burt, no. 7698. SOUTHAMPTON COUNTY: rich woods southeast of Ivor, no. 7697. DINWIDDIE COUNTY: border of dry pine woods about 1 mile northeast of Burgess, no. 7696. GREENSVILLE COUNTY: dry pine and oak woods about 1 mile north of Skipper's, no. 8890; similar habitat, within a few yards of the North Carolina line, southeast of Spring Church (2½ miles southwest of Dahlia), no. 8891. See p. 369.

G. OBTUSIFOLIUM, var. PRAECOX Fernald in RHODORA, xxxviii. 231, t. 434, figs. 1–3 (1936). Local range extended northward into HENRICO COUNTY: damp thicket, Solomon's Store, no. 7694.

G. CALVICEPS Fernald. Originally described from small plants (1–2.5 dm. high) from the region of Cape Henry, the species proves to be weedy and abundant on roadsides and in fallow fields westward

[1] It is well here to report the extension into North Carolina of ANTENNARIA PARLINII Fernald, var. ARNOGLOSSA (Greene) Fernald: argillaceous roadside-bank about 2 miles east of Spring Hope, Nash County, April 7, 1938, *Fernald & Long*, no. 7978.

into Dinwiddie, Sussex and Southampton Counties; in these disturbed ("cultivated") soils luxuriant, freely branched and up to 5.25 dm. high (many nos.).

Silphium atropurpureum Retz. To the two Virginian stations (one each in Wythe County and in Princess Anne County) recorded by Dr. Perry in Rhodora, xxxix. 290 (1937) add two in Surry County: calcareous, fossiliferous bushy slope near head of Sunken Meadow Creek, south of Claremont, no. 8498; dry woods northwest of Surry, no. 8894; and one in Greensville County: rich deciduous woods by Three Creek, north of Emporia, no. 9198. See p. 382.

S. compositum Michx., var. reniforme (Raf.) T. & G. To the only Virginian station (in Bath County) cited by Perry, l. c. 295 (1937) add one in Dinwiddie County: dry pine woods about 1 mile northeast of Burgess, no. 7700. See p. 369.

Chrysogonum virginianum L. Extending eastward at least to Prince George County (sandy wooded slopes along Powell's Creek, Garysville, no. 7980), Dinwiddie County (border of swampy woods, east of Burgess, no. 8499) and Greensville County (dry rich woods near Metcalf Branch, east of Emporia, no. 7981). See p. 375.

Heliopsis helianthoides (L.) Sweet. The typical large-headed plant, extending locally eastward to Surry County: rich calcareous woods near head of Sunken Meadow Creek, south of Claremont, nos. 8501, 9203. See p. 382.

Rudbeckia hirta L., var. monticola (Small) Fernald in Rhodora, xxxix. 457, 458 (1937). Greensville County: peaty and argillaceous clearing about 4 miles southeast of Emporia, no. 8503. James City County: rich woods south of Williamsburg, no. 8895.

A montane plant; here apparently isolated.

R. hirta L., var. Brittonii (Small) Fernald, l. c. Greensville County: with the last, no. 8504.

Also a montane type; here apparently isolated.

Actinomeris alternifolia (L.) DC. Eastward at least to Sussex County: rich woods, Moore's Mill, no. 7709; alluvial woods, Nottoway River, southwest of Lambs, no. 7710; and Surry County: rich calcareous wooded gullies along James River, Claremont Wharf, no. 9211.

*Coreopsis **oniscicarpa**, sp. nov. (tab. 533, tab. 534, fig. 1, 5 et 8), herba perennis glabra pallida 6–9 dm. alta erecta; caulibus subteretibus simplicibus supra corymboso-ramosis; foliis oppositis rariter alternis integris, basilaribus anguste oblanceolatis longe petiolatis laminis 3.5–7 cm. longis 0.5–1 cm. latis marginibus callosis, superioribus valde reductis bracteiformibus brevissimis; capitulis paniculato-corymbosis tenuiter pedunculatis pedunculis ad 1 dm. longis; involucri bracteis glabris, exterioribus 7–11 irregulariter biseriatis coriaceis

Photo. E. C. Ogden.

COREOPSIS ONISCICARPA: FIG. 1, plant. × ½; FIG. 2, head, × 1.

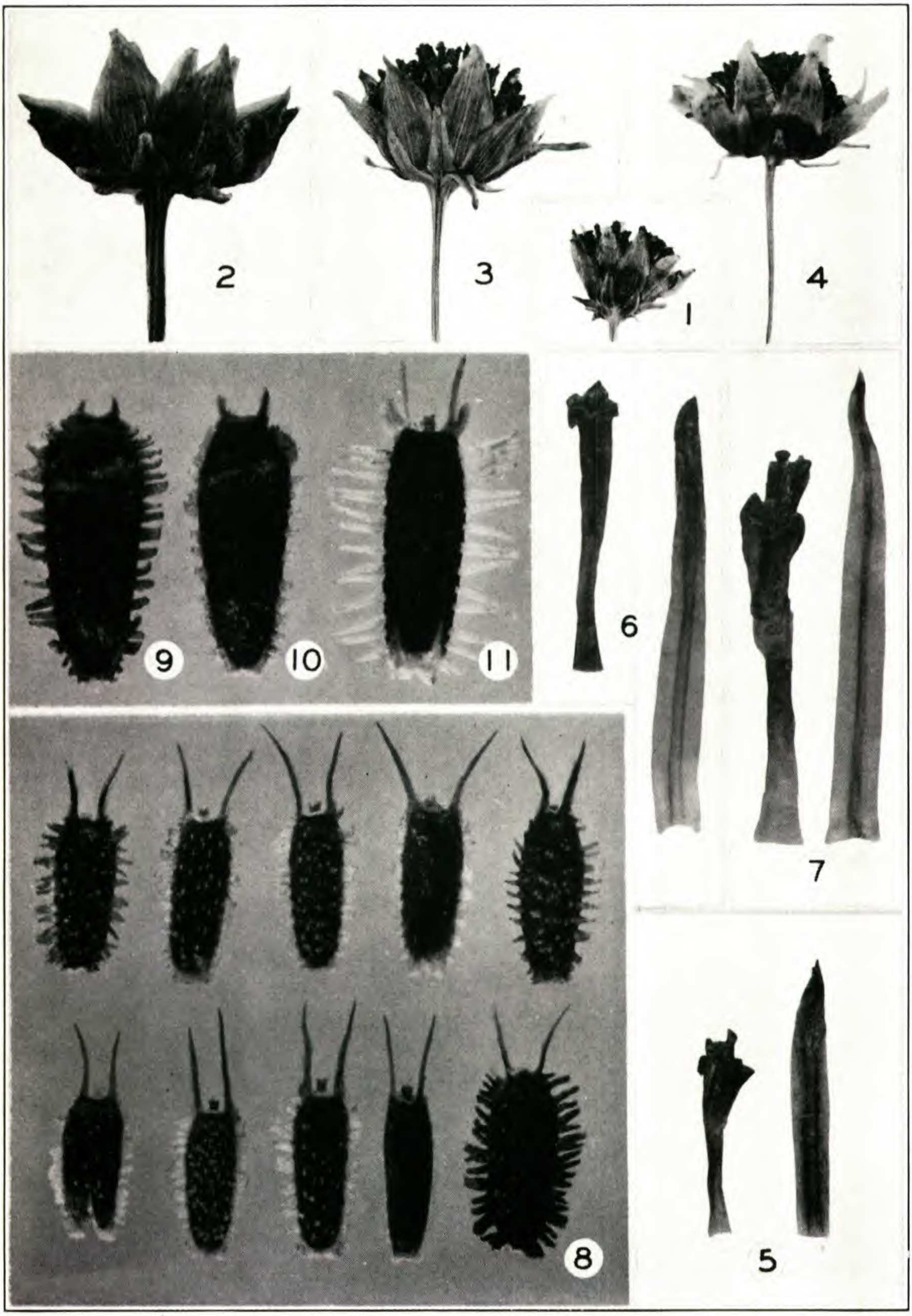

Photo. E. C. Ogden.

COREOPSIS ONISCICARPA: FIG. 1, involucre, × 2, from TYPE; FIG. 5, pale and disk-corolla, × 10, from TYPE; FIG. 8, achenes, × 10, showing variations, from TYPE.

C. GLADIATA: FIG. 2, involucre, × 2; FIG. 10, achene, × 10.

C. LONGIFOLIA: FIG. 3, involucre, × 2; FIG. 6, pale and disk-corolla, × 10; FIG 9, achene, × 10.

C. FALCATA: FIG. 4, involucre, × 2; FIG. 7, pale and disk-corolla, × 10; FIG. 11, achene, × 10.

lanceolatis 0.7–3 mm. longis, bracteis interioribus oblongis 6 mm. longis 2–3 mm. latis; floribus ligulatis ca. 8, ligulis aurantiaco-flavis cuneato-obovatis 0.8–1.6 cm. longis apice 3-lobatis lobo medio rotundato 1.5–3.5 mm. longis; paleis linearibus acutis 3.5–5 mm. longis; disci floribus corollis atropurpureis 2–3 mm. longis; achaeniis planis olivaceis plus minusve fimbriato-pectinatis, corpore 1.8–2.2 mm. longis 0.6–0.9 mm. latis faciebus plerumque valde papillatis, apice bi(rariter tri)-aristatis aristis 0.7–1.3 mm. longis antrorse setulosis.—VIRGINIA: ditches bordering sandy woods, Factory Hill, Nansemond County, August 26, 1936, *Fernald & Long*, no. 6728; wet thickets and ditches bordering sandy woods, Factory Hill, October 17, 1936, *Fernald & Long*, no. 6906 (TYPE in Gray Herb.); clearing in wet argillaceous pineland northeast of Courtland, Southampton County, September 11, 1937, *Fernald & Long*, no. 7712. Nos. 6728 and 6906 and some material of no. 7712 distributed as *C. gladiata* Walt.[1] See pp. 370, 379.

[1] Since the above account went into type *Coreopsis oniscicarpa* has been collected at several additional stations in southeastern Virginia and it has been found by my student, Mr. Robert K. Godfrey, to extend across eastern North Carolina from the boundary of Virginia to the boundary of South Carolina. It doubtless occurs in the latter state; and the scattered stations in southeastern Virginia are evidently northern outposts of a species primarily of North Carolina. The following are the additional stations:

VIRGINIA: seeping bank of ditch at margin of woods, about 2 miles southeast of Cleopus, Nansemond County, August 21, 1938, *Fernald & Long*, no. 9213; damp pineland north of Dahlia, Greensville County, October 12, 1938, *Fernald & Long*, no. 9653; edge of springy ditch bordering pine woods, east of South Quay, Nansemond County, October 13, 1938, *Fernald & Long*, no. 9654; springy roadside bank north of Factory Hill, Nansemond County, October 13, 1938, *Fernald & Long*, no. 9655 (topotype); peaty openings bordering wooded swamp along Mill Creek, about 1 mile north of Skipper's, Greensville County, October 14, 1938, *Fernald & Long*, no. 9657. NORTH CAROLINA: border of moist argillaceous pine and oak woods 1½ miles northeast of Dort School, Gates County, October 13, 1938, *Fernald & Long*, no. 9656; open pineland, Middlesex, Nash County, July 21, 1938, *R. K. Godfrey*, no. 5422; same station, October 9, 1938, *Godfrey & Kerr*, no. 6632; savannah, Edward, Beaufort County, October 11, 1938, *Godfrey & White*, no. 6887; pineland, Ft. Barnwell, Craven County, October 11, 1938, *Godfrey & White*, no. 6840; pineland, Grantsboro, Craven County, October 11, 1938, *Godfrey & White*, no. 6815; open pineland, Delway, Sampson County, August 25, 1938, *Godfrey*, no. 6164; savannah 8 miles southwest of Jacksonville, Onslaw County, September 1, 1938, *Godfrey*, no. 6464; savannah 5 miles east of Jacksonville, August 6, 1938, *Godfrey*, no. 5805; savannah 5 miles west of Richland, Duplin County, August 6, 1938, *Godfrey*, no. 5882; savannah, Burgaw, Pender County, August 7, 1938, *Godfrey*, no. 5921; margin between sandhill and peaty pineland, 8 miles south of Aberdeen, Scotland County, October 12, 1938, *Godfrey*, no. 6954; open pineland, Hallsboro, Columbus County, August 6, 1938, *Godfrey*, no. 6250; open pineland 7 miles southwest of Wilmington, Brunswick County, August 28, 1938, *Godfrey*, no. 6207.

Mr. Godfrey calls my attention to the habital similarity (in narrow basal and opposite cauline leaves) of *Coreopsis oniscicarpa* to *C. linifolia* Nutt. That more southern species, as shown by specimens in the Gray Herbarium so named by Sherff, has the outer involucral bracts ovate and rounded at summit (2–3 mm. broad, the lanceolate or lance-deltoid and tapering outer bracts of *C. oniscicarpa* only 0.6–1.3 mm. broad), the inner bracts 3.5–5 mm. broad (in *C. oniscicarpa* 2–3), and the glabrous faced achenes 3–3.5 mm. long (the strongly papillate, though finally glabrate, achenes of *C. oniscicarpa* only 1.8–2.2 mm. long). The type of *C. linifolia*, as also of *C. callosa* Bertol., referred by Sherff to it, came from Alabama and Sherff cites specimens only from Florida, Alabama and Mississippi, although there are specimens in the Gray Herbarium, labeled by him *C. linifolia*, from southeastern South Carolina, Georgia and Texas. Sherff's statement of range is "North Carolina to Florida, thence west-

The original material collected at Factory Hill was in bud and was referred tentatively to *C. gladiata*, this misidentification carelessly perpetuated in labeling later collections. However, as defined by Sherff in his *Revision of the Genus Coreopsis*,[1] which came out subsequent to our discovering the Virginia plant, *C. gladiata* has the basal leaves elliptic-oblong or oblanceolate, with blades 1–2.5 cm. broad; cauline leaves alternate; outer involucral bracts up to 6 mm. long, the inner 8–12 mm. long (our FIG. 2); and essentially glabrous black achenes 3.2–3.5 mm. long (our FIG. 10). *C. oniscicarpa* (from *Oniscus*, the sowbugs, etc.) in its narrow leaves is as near *C. longifolia* Small (FIGS. 3, 6 and 9) and *C. falcata* Boynton (FIGS. 4, 7 and 11). The contrasts between the three may be expressed in tabular form. They are also displayed in PLATE 534.

	C. LONGIFOLIA	C. FALCATA	C. ONISCICARPA
Leaves	Alternate	Alternate	Mostly opposite
Outer involucral bracts	Thin, 2–5 mm. long	Thin, 4–7 mm. long	Firm, 1–3 mm. long
Inner involucral bracts	6-12 mm. long, acutish	8–10 mm. long, acutish	6 mm. long, obtuse
Ligules	1.5–2.5 cm. long	1.3–2.3 cm. long	0.8–1.6 cm. long
Disc-corollas	3.5–4.5 mm. long	3.5–4 mm. long	2–3 mm. long
Pales	1 cm. long	6 mm. long	3.5–5 mm. long
Achenes	3.5–4.3 mm. long, the fringe much shorter than the breadth (1.1–1.6 mm.) of achene, faces glabrous	3.5–4.5 mm. long, the fringe as long as the breadth (0.8–1.2 mm.) of the achene, faces glabrous	1.8–2.2 mm. long, the fringe much shorter than the breadth (0.5–0.8 mm.) of the achene, faces copiously papillate

Coreopsis oniscicarpa is, then, completely segregated from its more southern allies by its usually opposite leaves, its smaller involucres, ligules and disk-corollas, and by the tiny achenes with papillate surfaces and with relatively long awns. Near Factory Hill, the type station, it is only about 3 miles (across Blackwater River) from the

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wardly to Alabama and Mississippi." The reputed occurrence in North Carolina of *C. linifolia* has no support in Sherff's citation of specimens; and Mr. Godfrey, who spent a long season exploring eastern North Carolina, bringing back to the Gray Herbarium 3500 series of vascular plants, got *C. oniscicarpa* southward practically to the South Carolina line and found *C. falcata* in abundance but saw no *C. linifolia*. It is probable that the unexplained report of *C. linifolia* as extending northward to North Carolina originated with material of *C. oniscicarpa*.

[1] Field Mus. Nat. Hist. Bot. Ser. xi. no. 6 (1936).

type station of *Chrysopsis Longii*, *Desmodium ciliare* var. *lancifolium* and *Sanicula marilandica* var. *petiolulata*. It is there only a few miles from the type station of *Lespedeza capitata* var. *hirtiformis*, while its area northeast of Courtland (no. 7712) is the type station for *Solidago perlonga*.

*C. LANCEOLATA L., var. VILLOSA Michx. HENRICO COUNTY: scattered in dry woods (exact locality not stated), May, 1933, *S. B. Kovacs* (sent from University of Richmond to the Gray Herbarium as *C. pubescens*).

Not cited by Sherff, Revis. Gen. Coreopsis, 344 (1936) from Virginia.

*C. GRANDIFLORA Hogg. PRINCESS ANNE COUNTY: border of pine woods near Creeds, *F. & G.*, no. 4515. Escape from cultivation generally.

Although Sherff, l. c. 353, gives the mystifying range "Missouri and Kansas southward to Florida," etc., he cites material from Georgia; however, he notes none on the Atlantic slope from north of there. Our material, though young, seems inseparable from the plant of Little Stone Mountain, cited by Sherff.

*COREOPSIS **heterogyna**, sp. nov. (TAB. 335, FIG. 1–9), planta perennis; caulibus valde corrugatis arcuato-adscendentibus 9 dm. altis basi pilosis; foliis caulinis primariis 6-jugis late oblanceolatis acutis longe petiolatis, petiolis 0.5–1 dm. longis, laminis 9–13 cm. longis 2–3.5 cm. latis utrinque pilosis; foliis superioribus subpetiolatis; pedunculis 1–2.5 dm. longis; involucri bracteis exterioribus 9 firmis deltoideo-lanceolatis 7–9 mm. longis mox reflexis margine albido-hyalinis; bracteis interioribus ovatis 1.5–1.7 cm. longis 0.7–1 cm. latis; ligulis plerumque 8 flavis cuneato-obovatis 2 cm. longis apice 3-lobatis; floribus tubulosis aurantiacis; paleis lineari-attenuatis deinde 1–1.2 cm. longis; achaeniis diversis, minoribus (sterilibus vel substerilibus) cuneato-oblongis subplanis corpore 3–3.5 mm. longo 0.7–1.5 mm. lato utrinque laevi alis albidis 0.3–0.5 mm. latis, majoribus late obovatis vel reniformibus valde concavis corpore 3.5–4 mm. longo 2–2.5 mm. lato dorso laevi vel plus minusve verrucoso-muriculato ventre (valde concavo-excavato) plus minusve aristato-muriculato alis brunneis 1–1.5 mm. latis.—VIRGINIA: rich alluvial woods and thickets back of sand-beach of James River, below Sunken Meadow Beach, Surry County, June 14, 1938, *Fernald & Long*, no. 8506 (TYPE in Herb. Gray, ISOTYPE in Herb. Phil. Acad). See p. 383.

It is doubtless bold to propose another species in *Coreopsis*, § *Eucoreopsis;* but of the temperate North American species I can find

none with achenes like the large central ones[1] of *C. heterogyna*. The newly proposed species is obviously a member of the series including *C. lanceolata* L., *C. corninsularis* Sherff, *C. debilis* Sherff, *C. intermedia* Sherff, *C. pubescens* Ell., *C. heterolepis* Sherff, *C. grandiflora* Hogg and *C. auriculata* L. From many of these it stands apart on superficial as well as technical characters. *C. auriculata* is a stoloniferous plant with the lower leaves rounded or ovate and the small achenes (FIGS. 14 and 15) with narrow incurved wings. *C. lanceolata* is subscapose (with the rather small and often pinnately cleft leaves crowded at base), with inner involucre only 8–12 mm. long, the outer (FIG. 12) remaining appressed-ascending, pales only 4–6 mm. long, achenes (FIG. 13) smaller and with narrower wings. *C. corninsularis* is even smaller, 3–4 dm. high, with leaves only 1–6 mm. wide, outer involucre only 3–5 mm. long and of linear bracts, inner about 1 cm. long; the achenes smaller and with wings only 0.5–0.75 mm. wide. *C. debilis* is smaller still, with peduncles only 1–3 cm. long, ligules only 1 cm. long, inner involucre 7–8 mm. long and bodies of achenes only 2 mm. long and 1 mm. wide. *C. heterogyna* traces, by Sherff's key, nearly to his *C. intermedia* from Texas, a plant I have not seen. He describes it, however, as having petioles at most 4.5 (instead of 5–10) cm. long, blades obtuse (instead of acute), chiefly sessile (instead of petioled), outer involucral bracts lanceolate or linear-lanceolate and 4–8 mm. long (instead of deltoid-lanceolate and 7–9 mm. long), inner broadly lanceolate and 12–14 mm. long (instead of ovate and 1.5–1.7 cm. long), body of larger achenes 2–3 mm. long and 1.3–2 mm. wide, with wing only 0.2–0.4 mm. wide (instead of body 3.5–4 mm. long and 2–2.5 mm. wide, with wing 1–1.5 mm. wide). The large achene with broad wing and the long-petioled and acute leaves unite with the other characters to keep *C. heterogyna* apart. *C. pubescens* has relatively short elliptic to oblong-ovate leaf-blades, outer and inner involucres subequal, with the outer linear-lanceolate, pales at most 8 mm. long, achenes with bodies at most 3 mm. long, their wings only about 0.5 mm. wide. *C. heterolepis* has some of the leaves dissected, outer involucral bracts slenderly linear, inner bracts short, achenes oblong and at most 1.7 mm. long and with wing only 0.2–0.4 mm. broad. *C. grandiflora* has narrow leaves or leaf-segments (often

[1] Although the fact is not sharply brought out in Sherff's Revision of the Genus Coreopsis, most (if not all) the species of this series have achenes of quite different shapes and sizes. His measurements are presumably taken from the largest and central ones.

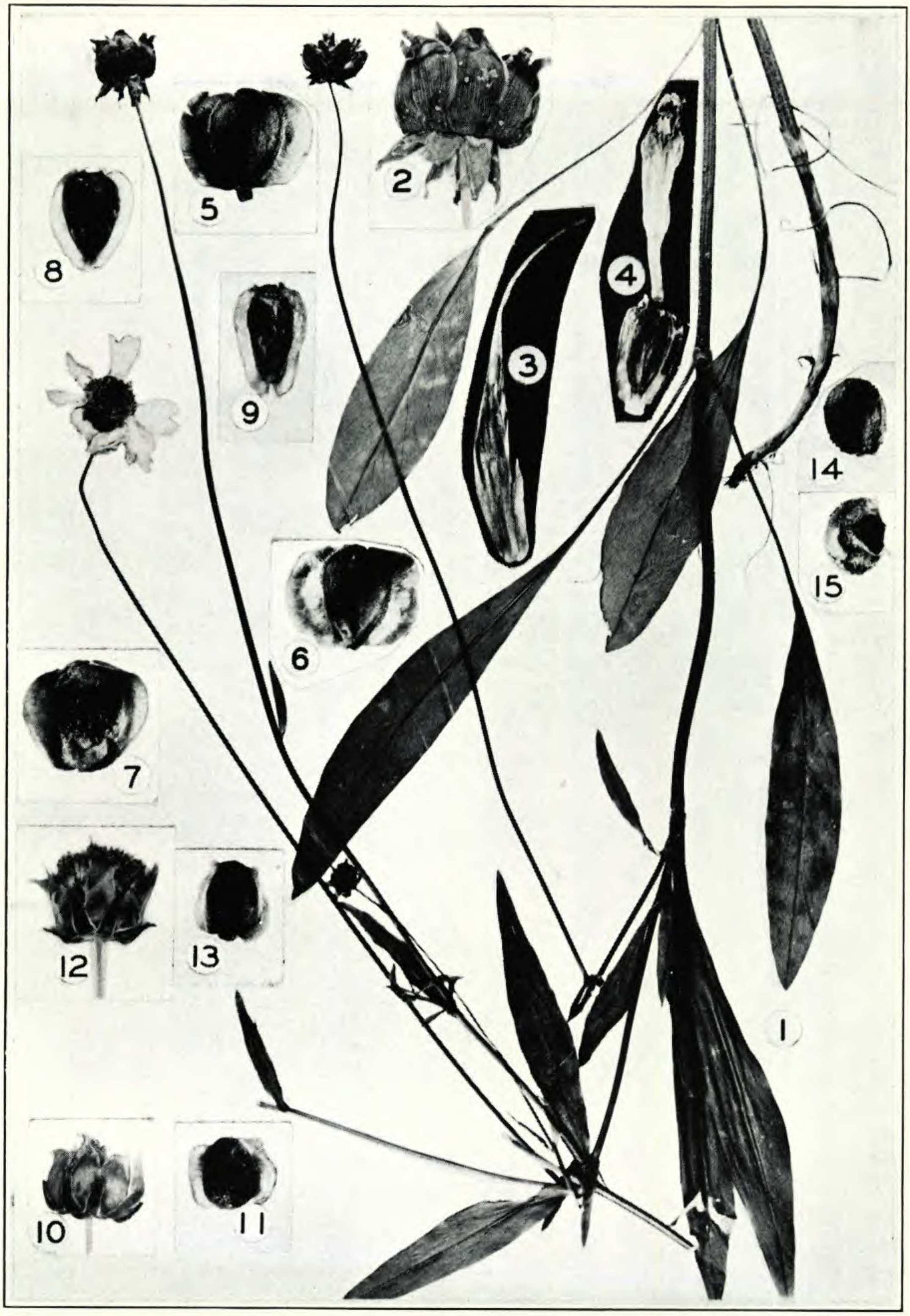

Photo. H. G. Fernald.

COREOPSIS HETEROGYNA: FIG. 1, isotype, × ½; FIG. 2, involucre, × 1; FIG. 3, pale, × 4; FIG. 4, disk-flower, × 4; FIGS. 5 and 6, large central achenes (dorsal view), × 4; FIG. 7, central achene (ventral view), × 4; FIGS. 8 and 9, smaller achenes, × 4.

C. GRANDIFLORA: FIG. 10, involucre, × 1; FIG. 11, large central achene (dorsal view), × 4.

C. LANCEOLATA: FIG. 12, involucre, × 1; FIG. 13, large central achene (dorsal view), × 4.

C. AURICULATA: FIGS. 14 and 15, achenes (dorsal and ventral views), × 4.

nearly linear-filiform), outer narrow involucral bracts appressed-ascending to maturity (FIG. 10), pales at most 7 mm. long and achenes (FIG. 11) up to 2.5 mm. long, with narrow wing.

C. AURICULATA L. GREENSVILLE COUNTY: rich deciduous woods by Metcalf Branch, east of Emporia, nos. 7982, 8507; rich deciduous woods by Three Creek, north of Emporia, no. 8509. SURRY COUNTY: calcareous, fossiliferous bushy slope near head of Sunken Meadow Creek, south of Claremont, no. 8508.

The only definite region of Virginia for this species cited by Sherff is Bedford County.

HELENIUM NUDIFLORUM Nutt. GREENSVILLE COUNTY: peaty and argillaceous clearing about 4 miles southeast of Emporia, no. 8511.

*ANTHEMIS ARVENSIS L., var. AGRESTIS (Wallr.) DC. SUSSEX COUNTY: roadside south of Stony Creek, no. 8513. GREENSVILLE COUNTY: cultivated field, 1 mile south of Emporia, no. 7983; seen rather generally through the region.

*CIRSIUM REPANDUM Michx. SOUTHAMPTON COUNTY: dry sandy open pine and oak woods 6 to 7 miles south of Franklin, no. 8516.

First from north of North Carolina.

*CNICUS BENEDICTUS L. DINWIDDIE COUNTY: in and about a newly seeded clover-field, southwest of Petersburg, no. 7986.

*SERINIA OPPOSITIFOLIA (Raf.) Ktze. SOUTHAMPTON COUNTY: roadside-ditch bordering alluvial woods, bottomland of Meherrin River, near Haley's Bridge, no. 8517.

Extension north from South Carolina.

*LACTUCA HIRSUTA Muhl. SOUTHAMPTON COUNTY: border of dry pine woods west of Adams Grove, no. 7720; dry white sand in woods, Terrapin Ridge, east of Drewryville, no. 9226. SUSSEX COUNTY: border of dry woods near Assamoosick Swamp, about 2 miles northeast of Homeville, no. 9227.

Typical *Lactuca hirsuta* is apparently rare. Familiar with the wide-ranging northern plant (Prince Edward Island to Virginia and less commonly to Louisiana and Texas), in which the stem is quite glabrous, the leaves glabrous or mostly so except for the midrib villous beneath, and the panicle commonly broad and subcorymbiform, we were at once struck by the great disparity of no. 7720, which attracted us, while we were driving past it, by its slender cylindric or racemiform panicle. We were further struck, when collecting it, by its stem densely villous on the lower fourth and the leaf-surfaces copiously pilose (almost velvety to the touch). In the Gray Herbarium this highly pubescent plant can be matched only by an old sheet

from Louisiana (*Hale*) which Torrey & Gray had cited under their *L. elongata*, γ. *sanguinea* (Bigel.) Torr. & Gray, Fl. N. Am. ii. 496 (1843). Torrey & Gray cited only four collections, two of which (from Massachusetts and Louisiana) are before me. The Massachusetts plant (type or isotype of *L. sanguinea* Bigelow) is the common extreme with glabrous stem and glabrous leaf-surfaces. One of Hale's Louisiana specimens is quite glabrous throughout (*L. hirsuta*, forma *calvifolia* Fernald in RHODORA, xxii. 156 (1920)), the other is the rare extreme with villous lower internodes, pilose leaf-surfaces and slender racemiform panicle (4 dm. long, 7 cm. in diameter). Torrey & Gray's description was all-inclusive: leaves "mostly hirsute-pubescent (as well as the stem) either throughout or on the midrib beneath." In the Synoptical Flora, Gray gave a similar inclusive account but, judging from the material in the Gray Herbarium, even at that late date he had only 5 specimens before him (2 from Massachusetts, 2 from Louisiana and 1 from Texas) and he gave its northeastern limit as "E. Massachusetts." Today, with 90 specimens in the Gray Herbarium and that of the New England Botanical Club, showing a range northeastward to Nova Scotia and Prince Edward Island, we can better evaluate the characters.

All material from eastern Canada and New England is consistent in having glabrous or very rarely sparsely hirsute lower internodes, glabrous or at most (and very exceptionally) sparsely pilose leaf-surfaces, with the midribs of the lower leaves villous (or in forma *calvifolia* glabrous), and the inflorescence, when well developed, corymbiform-paniculate, 1.5–6 dm. long by 0.5–5 dm. broad. The material in the Gray Herbarium from west and south of New England is too scanty for generalization. Most of it (from New Jersey, Virginia, Louisiana and Texas) is like the essentially uniform plant of New England. Our specimens above cited from southeastern Virginia, and one of the Hale sheets from Louisiana, as already noted, stand apart in having the lower internodes densely villous, both leaf-surfaces copiously pilose and the inflorescences racemiform (3–4.5 dm. long, by 7–10 cm. in diameter).

So accustomed are we to considering the plant of wide range (common in much of New England) as typical *Lactuca hirsuta* Muhl. that the original diagnosis published by Nuttall is a bit startling:

2. **hirsuta* Muhl. Catal. Lower part of stem and leaves hirsutely pilose, radical ones lyrate, segments truncate, subdentate, the upper leaves

partly runcinate-pinnatifid; flowers racemose, squamae subulate. HAB. in Pennsylvania. Pappus stipitate. *v. s.* In Herb. Muhl.—Nutt. Gen. ii. 124 (1818).

In his Catalogue (1813) Muhlenberg's description had been altogether too vague, he merely noting the "*Calix. Corolla*" as "lut-purp" (obviously referring to the yellow flowers and the purple involucres), with the only other character of the plant "hairy." In the 2-volume manuscript of Muhlenberg's unpublished *Florula Lancastriensis* (i. 552) in the library of the Gray Herbarium he gave a detailed characterization of the plant, under an unpublished name more appropriate than the published *L. hirsuta.* The pertinent phrases, which show what Muhlenberg had in mind, are as follows: "caule erecto (infra) hirsuto, supra glabro . . . foliis . . . subtus pilosis margine ciliatis, caulinis, sessilibus simplicibus raris." Muhlenberg's unpublished "foliis subtus pilosis" and Nuttall's published "leaves hirsutely pilose" (without restricting the pilosity to the midrib or the *lower* surface) have made it most important to see exactly what Muhlenberg had before him and what Nuttall had seen in Muhlenberg's herbarium. Dr. Pennell has most kindly sent me for examination all the material of *L. hirsuta* in the herbarium of the Academy of Natural Sciences of Philadelphia. This includes Muhlenberg's original sheet and another which Nuttall had labeled. The Muhlenberg type from the Lancaster region (although the label gives no clue to locality) is quite like our no. 7720, except that the inflorescence is extremely young and undeveloped, with only very young heads and the branches not yet elongated. A second sheet, erroneously labeled by Thomas Nuttall "*Galathenium Floridanum. Mulgedium Floridanum*" (presumably through transfer of labels[1]) has two specimens. One is essentially like the Muhlenberg type of *L. hirsuta,* but more complete and with better-developed heads. The other, more sparsely pubescent (or subglabrous) except the villous midrib beneath, has the slenderest of racemiform young panicles and is transitional between the extreme *L. hirsuta* (the type) and the smooth-stemmed *L. sanguinea* Bigel. This sheet was presumably part of the original collection of Muhlenberg's from near Lancaster.

A most important sheet is one from Porter's herbarium, a plant

[1] *Galathenium floridanum* (L.) Nutt. was based on *Sonchus floridanus* L. and *Mulgedium floridanum* (L.) DC.; and Nuttall correctly placed it in the group (*Galathenium* Nutt. being merely a renaming of *Lactuca* L.) with blue flowers. *Lactuca hirsuta* has yellow flowers.

collected in September, 1868, by McMinn in Elk County, in northwestern Pennsylvania, at the northern margin of the Allegheny Plateau; for the Elk County plant has the lower internodes of the stem and the leaf-surfaces as strongly pubescent as in the Muhlenberg type and the similar plants of Virginia and Louisiana, but the large and strongly branching panicle as corymbiform as in extreme *L. sanguinea*. In involucre and achenes the McMinn material is likewise inseparable from the latter.

From New York state the very few specimens seen are characteristic *Lactuca sanguinea*. At least the plant from near Cayuga Lake is clearly described as having the "leaves sparingly and coarsely setose along the midrib";[1] and Dr. House, who has most kindly sent me for study the series in the New York State Museum, can find only two sheets properly referable to the inclusive *L. hirsuta*. These are very characteristic *L. sanguinea* and both from the Champlain and upper Hudson drainage in the northeastern corner of the state.

Returning to Pennsylvania and New Jersey, the sheets at the Philadelphia Academy, including those of the Philadelphia Botanical Club, are all (except the Muhlenberg type and the Nuttall counterpart of it) characteristic *Lactuca sanguinea*, and all from the southern half of New Jersey.

As a result of the present study I am unable to keep apart as species *Lactuca hirsuta* and the usually very different *L. sanguinea;* but, whereas typical villous-stemmed and pilose-leaved *L. hirsuta* is very rare anywhere and not known north of Pennsylvania nor recently collected in the type-region, the smoother variety (*L. sanguinea*) is wide-ranging over much of the eastern portion of the United States and the Maritime Provinces and often frequent or common, as in most of New England, though as often absent from or very rare in adjacent areas, like New York, Pennsylvania and northern New Jersey. Much herbarium-material is erroneously identified, for, as pointed out by Wiegand and me in 1910, the key-character (villosity of the midrib) relied upon both in Gray's Manual and in Britton's is quite misleading. We then gave the significant differences between *L. hirsuta* and *L. canadensis* L.,[2] both of which may have the midrib

[1] Wiegand & Eames, Fl. Cayuga L. Basin, 427 (as *L. hirsuta*).

[2] In 1920 (Rhodora, xxii. 9–11) Wiegand published his very usable revision of the variations of *Lactuca canadensis* L. He did not, however, personally investigate the type of the species but deduced from the earlier treatment of Gray that "it is to be presumed that the Kalm specimen [the type] had divided leaves." Wiegand, conse-